طرح نگهداشت و افزایش تولید 27 مخزن

CALCULATION NOTE FOR CONTROL VALVE SIZING

نگهداشت و افزایش تولید میدان نفتی بینک

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Status:

- IDC: Inter-Discipline Check
- IFC: Issued For Comment
- IFA: Issued For Approval
- AFD: Approved For Design
- AFC: Approved For Construction
- AFP: Approved For Purchase
- AFQ: Approved For Quotation
- IFI: Issued For Information
- AB-R: As-Built for CLIENT Review
- AB-A: As-Built –Approved

REVISION RECORD SHEET

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CONTENTS

1.0 INTRODUCTION

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

As a part of the Project, a New Gas Compressor Station (adjacent to existing Binak GCS) shall be constructed to gather of 15 MMSCFD (approx.) associated gases and compress & transfer them to Siahmakan GIS.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields Company (NISOC)
PROJECT:	Binak Oilfield Development – Surface Facilities; New Gas Compressor Station
EPD/EPC CONTRACTOR (GC):	Petro Iran Development Company (PEDCO)
EPC CONTRACTOR:	Joint Venture of : Hirgan Energy – Design & Inspection(D&I) Companies
VENDOR:	The firm or person who will fabricate the equipment or material.
EXECUTOR:	Executor is the party which carries out all or part of construction and/or commissioning for the project.
THIRD PARTY INSPECTOR (TPI):	The firm appointed by EPC CONTRACTOR and approved by GC & CLIENT (in writing) for the inspection of goods.
SHALL:	Is used where a provision is mandatory.
SHOULD:	Is used where a provision is advisory only.
WILL:	Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR.
MAY:	Is used where a provision is completely discretionary.

2.0 SCOPE

The purpose of this document is to provide report for sizing of all control valves used in Gas Compressor station of Binak Plant.

3.0 NORMATIVE REFERENCES

3.1 Local Codes and Standard

IPS-E-IN-160	Engineering Standard for Control Valves
IPS-M-IN-160	Material Standard for Control Valves
IPS-E-PR-830	Process design of valves and control valves

3.2 International Codes and Standards

API RP 553	Refinery Valves and Accessories for Control and Safety Instrumented Systems

3.3 The Project Documents

BK-GCS-PEDCO-120-PR-PF-0001	Process Flow Diagram (PFD)
BK-GNRAL-PEDCO-000-PR-DB-0001	Process Basis of Design
BK-GNRAL-PEDCO-000-PR-DC-0001	Process Design Criteria

3.4 ENVIRONMENTAL DATA

Refer to "Process Basis of Design"; Doc. No. Process Basis of Design BK-00-HD-000-PR-DB-0001

3.5 Order of Precedence

In case of any conflict between the contents of this document or any discrepancy between this document and other project documents or reference standards, this issue must be reported to the CLIENT. The final decision in this situation will be made by CLIENT.

4.0 ABBREVIATIONS

NISOC:	National Iranian South Oil Company
PFD:	Process Flow Diagram
P&ID:	Piping and Instrumentation Diagram

5.0 CONTROL VALVE SIZING

5.1 Software

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- The software using for sizing control valves is Fisher.

5.2 Case Study

Three cases have been considered for control valve sizing:

- Case 1: Minimum operating flow is equal to 30% of normal operating flow (the lowest flow rate between two case,(summer / winter) considered as normal flow).
- Case 2: Normal operating flow.
- Case 3: Maximum operating flow is equal to 110% of normal operating flow. (the highest flow rate between two case (summer / winter) considered as normal flow).

Note: It should be noted that the special conditions, related to each control valve is taken into account.

5.3 SIZING

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The below table contains the details sizing for the control vales that installed in GCS.

Table 5.1: Control Valve Sizing result

NO	LINE SIZE	Valve No.	Normal Flow Rate (kg/h)	Normal Upstream Pressure (Barg)	Normal Downstream Pressure (Barg)	CV Rated	SIZE (in)	P&ID
1	6	FCV-2101	6564	6.5	5.5	113.45	4	BK-GCS-PEDCO-120-PR-PI-0002(1/1)
2	8	FCV-2102	11269	6.5	5.5	181.411	6	BK-GCS-PEDCO-120-PR-PI-0003(1/1)
3	4	FCV-2111	7140	19.5	18.5	10.79	2	BK-GCS-PEDCO-120-PR-PI-0004(3/3)
4	3	PCV-2272	506	5.1	4.9	19.03	3	BK-GCS-PEDCO-120-PR-PI-0022
5	1.5	PCV-2201	30	9	4.5	1.60	1	BK-GCS-PEDCO-120-PR-PI-0015(1/2)
6	6	PCV-2135	8626	54.1	0.5	11.07	3	BK-GCS-PEDCO-120-PR-PI-0011
7	4	PCV-2152	17171	52.9	0.5	23.26	3	BK-GCS-PEDCO-120-PR-PI-0013(1/3)
8	6	PCV-2151	17171	52.9	51.92	96.58	3	BK-GCS-PEDCO-120-PR-PI-0013(1/3)
9	2	PCV-2211	34	8	7.5	0.66	1	BK-GCS-PEDCO-120-PR-PI-0016

NOTE 1:Control Valve Size Will Be Considered Based On Letter No. 01/2294/205792 (attachment no.2)

NOTE 2: Control Valve Size Will Be Finalized By Vendor

5.4 DETAILS OF CALCULATION RESULT

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ATTACHMENT 1

(SOFTWARE RESULT)

ATTACH MENT2

Letter No. 01/2294/205792